associated with the received signal." The Examiner contends that the '819 reference teaches this quoted feature, arguing "the movement of the station can be a factor in the adjustment of errors in (see page 3 lines 4-6)." Page 3, lines 4-6 state: "the searcher also tracks changing propagation conditions resulting from movement of the mobile station or some other object associated with one of the multipaths to adjust the extracted delays accordingly." This text teaches that propagation conditions may change with mobile movement. It does not teach reducing delay error taking into account a Doppler effect associated with the received signal.

The '819 reference calculates the delay error in equation (3) on page 19. Although there is a discussion of an adjustment signal on pages 20-22, this adjustment signal relates to a noise filtering process. Specifically, successive delay spreads are calculated and a difference is determined therebetween. The adjustment signal is set equal to the delay error signal if the delay spread difference is less than or equal to a threshold. Alternatively, the adjustment signal is set to zero if the delay spread difference is greater than the threshold. There is no teaching or suggestion in either the filtering or with the adjustment signal to "reduce the delay error taking into account a Doppler effect associated with the received signal." The adjustment signal in the '819 reference is either set equal to zero or equal to the delay error. There is no intermediate adjustment to the delay error. More importantly, there is no teaching in the '819 reference of taking into account a Doppler effect associated with the received signal. All searchers track changing propagation conditions. Otherwise, they would not be performing the basic

searcher function. Applicants find no teaching, and the Examiner has provided no explicit reference to such a teaching, in the '819 reference of determining a Doppler effect associated with a received signal -- let alone using such a Doppler effect to adjust the delay error between the mean CIR delay and a desired delay position of a search window. The fact that the '819 reference recognizes that mobile station movement may change the radio propagation path is not the same thing as a teaching of "determining an adjustment signal to reduce the delay error taking into account a Doppler effect associated with the received signal."

The Examiner turns to the four secondary alternative references. The Atarius and Ostberg patents are not prior art under 35 U.S.C. §103(c) because they and "the claimed invention were, at the time the invention was made, owned by the same person [Telefaktiebolaget LM Ericsson (publ)] or subject to an obligation of asssingment to the same person [Telefaktiebolaget LM Ericsson (publ)].

Hasegawa describes a mobile phone that operates in a "drive mode" as well as a "normal mode." The calculated Doppler frequencies for respective receiving branches are calculated and used to indicate whether the mobile "is on the move," (see 0035), or "stops or does not move a high speeds," (see 0036). The Examiner's position is that Hasegawa's use of Doppler frequencies describe "that Doppler effect can be used of taken into account for adjusting a signal."

First, Hasegawa does not teach using the Doppler effect "to adjust a signal." Instead, Hasegawa uses the Doppler effect to determine whether the mobile is moving at

high speed or not in order to put the mobile in drive mode or normal mode. No signal is being adjusted. Second, Hasegawa's teachings have nothing to do with what is claimed. Again, claim 1 recites "determining an adjustment signal to reduce the delay error taking into account a Doppler effect associated with the received signal." Hasegawa describes a delay profile searcher 12, but fails to describe any use of the disclosed Doppler frequencies by that delay profile searcher 12—let alone generating an adjustment signal to reduce delay error between a mean CIR delay and a desired delay position based on a Doppler effect associated with the received signal.

The fourth secondary reference to Flaig is also not relevant. It teaches a interference cancellation using a regenerated signal associated with each user. The Examiner apparently has done a word search for Doppler and found a match in Flaig at paragraph 0051. Not surprisingly, the context is irrelevant to what is claimed. The cutoff frequency of a lowpass filter used in channel estimation is determined by a constant μ. "This constant is chosen based on the expected Doppler frequency of a particular user." [See 0051].

Flaig, like Hasegawa, does not remedy the deficiencies of the Examiner's rejection. How does a constant chosen based on an expected Doppler frequency of a user for use in a lowpass filter equation for channel estimation describe "determining an adjustment signal to reduce the delay error taking into account a Doppler effect associated with the received signal?" The teachings of Flaig plainly have nothing to do with this claim language.

So even if the '819 reference were combined with Hasegawa or Flaig, either combination fails to disclose or suggest: "determining an adjustment signal to reduce the delay error taking into account a Doppler effect associated with the received signal." Nor is not enough for an obviousness combination to simply locate the word Doppler in a reference. The claims recite the using a Doppler effect in a specific context to perform a specific function. The claims do not simply recite None of the applied references describes either.

Thus, even if the combination of the '819 and the '389 references could be made, for purposes of argument only, that combination still fails to disclose the following claim features:

- determining a Doppler frequency for the received signal
- calculating an adjustment signal to reduce the delay error taking into account a relative movement between the receiver and the transmitter and the determined Doppler frequency.

Claim 25 recites "a controller configured to determine a position of a search window used to locate the channel impulse response that takes into account a Doppler effect on transmitted signals." The radio base station of claim 39 recites "a Doppler frequency estimator configured to estimate a Doppler frequency," and a "window tracking unit configured to maintain alignment between the CIR for each channel estimator and a target position of the channel estimator's corresponding search window using the determined Doppler frequency." None of these features from claim 25 or claim 39 is found in the applied references.

Neither reference applied by the Examiner recognizes the problem identified and solved by the present invention. It is well established by the Federal Circuit that the problem confronted by the inventor must be considered in determining whether it would have been obvious to combine references in order to solve that problem. See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931 (Fed. Cir. 1990). In contrast to these references applied by the Examiner, the instant inventors recognized that both slow fading and fast fading are particularly troublesome when trying to keep the channel impulse response within the search window. A fade can cause one of the delayed paths in the search window to disappear. Naturally, the window tracking unit responds by adjusting the position of the search window, often significantly, based on the assumption that this faded path no longer exists. But that assumption is typically wrong because the faded path very often reappears. If the search window is adjusted too rapidly, it may be badly aligned when the faded path reappears.

Absent a recognition of this problem, there is no other plausible reason that the Examiner has provided from the prior art why either applied reference would be modified to determine and then take into account a Doppler effect associated with the received signal with respect to adjusting the delay error between the mean channel impulse response delay position and a desired delay position. Lacking a teaching in the '819 and '389 references of all the features recited in the independent claims and an appreciation in either of these references of the significant problems addressed and solved by the present inventors, the obviousness rejection is improper and should be withdrawn.

The Examiner fails to address in any meaningful way the dependent claim features and makes only a vague reference to the '819 disclosure. If the Examiner elects to maintain this rejection, Applicants respectfully request that the Examiner specifically identify where each element of each of the following dependent claims is described in the '819 reference using specific page and line numbers for each claim element: 3-8, 11-13, 15-22, 26-36, 40, 41, 45-50. For example, the Examiner fails to identify where the '819 patent discloses that the maximum Doppler frequency is expressed as a minimum dwell time (MDT).

The application is in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____
John R. Lastova
Reg. No. 33,149

JRL:km
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100